



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,038	05/25/2000	Tomoyoshi Yabe	PM 270700	6470

7590 09/12/2003

SHOOK, HARDY & BACON L.L.P.
600 14TH STREET
SUITE 800
WASHINGTON, DC 20005-2004

EXAMINER

KIBLER, VIRGINIA M

ART UNIT	PAPER NUMBER
----------	--------------

2623

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/578,038

Applicant(s)

YABE, TOMOYOSHI

Examiner

Virginia M Kibler

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,10 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al. (JP 09160982).

Regarding claim 6, Suzuki et al. (“Suzuki”) discloses a surface inspection for work products that pass through a plurality of manufacturing processes (Abstract, lines 1-6). Suzuki further discloses a detecting means 29-34 for detecting the entry and exit of the work into and out of each manufacturing process (Pages 6 and 7, para. 0031-0040), a time-measuring means for measuring times when the entry and exit of the work board are detected by the detecting means (Page 6, para. 0038), and an identifying means for identifying the work based on a process number representing each manufacturing process, and on times of entry and exit of the work into and out of the process measured by the time-measuring means (Page 5, para. 0025-0027, 0031-0040; Abstract, lines 7-22).

Regarding claim 10, Suzuki discloses an identifying means for identifying the image data based on a process number representing each manufacturing process, and on the exit time of the work out of the process measured by the time-measuring means (Page 5, para. 0025-0027, 0031-0040; Abstract, lines 7-22).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (JP 09160982).

Regarding claim 8, Suzuki discloses detecting the entry time, the time when the product existed in the process, and the time transported (Page 4, para. 0019). Suzuki further discloses the detecting means detects the transfer time of each process (Pages 6 and 7, para. 0031-0040). Suzuki does not appear to recognize detecting the leading and trailing end portion of the work product. It would have been an obvious matter of design choice to modify the detecting the transfer time of each process to detect the leading and trailing end of the work product to be transferred, since the applicant has not disclosed that the detection of the leading and trailing end portions solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with Suzuki's alternative method of detecting the work product for measuring time.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (JP 08-075666) in view of Chahal et al. (4,525,741).

Regarding claim 1, Uchida et al. ("Uchida") discloses a surface inspecting system including a line sensor 4 for one-dimensionally imaging an elongated work board 1 in lines perpendicular to the moving direction (Page 2, para 0012), a velocity-measuring means for measuring in real time the moving velocity of the work board on each data sampling position of the line sensor (Page 2, para. 0011), a sampling control means for controlling the image data sampling of the line sensor in the direction of board movement and on the basis of the moving velocity of the work board measured by the velocity means (Page 3, para. 0014), and an image-composing memory for forming a two-dimensional image of the work board (Page 2, para. 0012). Uchida does not appear to recognize the line sensor comprising two types of image data sampling means, one for an odd-number sampling line and the other for an even-number sampling line. However, Chahal et al. ("Chahal") teaches that it is known to provide a line sensor for one dimensional imaging comprising two types of image data sampling means, one for odd-number and the other for even-number sampling line and forming a two-dimensional image by sequentially combining the odd-line and even-line data (Col. 3, lines 60-65 and Col. 4, lines 1-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the data sampling of the line sensor and forming the two-dimensional image disclosed by Uchida to include odd-number and even-number sampling as taught by Chahal because it is routinely implemented in the art to provide the 2-D image needed for surface inspection. This procedure will expedite surface inspection by performing parallel processing of the captured image data.

Art Unit: 2623

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (JP 08-075666) in view of Chahal et al. (4,525,741) as applied to claim 1 above, and further in view of Bonewitz et al. (5,917,602).

Regarding claim 2, Uchida and Chahal do not recognize the velocity-measuring means measuring the rotational velocity of a transferring roller for transferring the board. However, Bonewitz et al. ("Bonewitz") teaches that it is known to measure the rotational velocity of a transferring roller 202 (Col. 9, lines 20-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the velocity-measuring means disclosed by Uchida and Chahal to include measuring the rotational velocity of a transferring roller, as taught by Bonewitz, because it will encompass translational and rotational velocity measurements in conveyor systems that are traditionally comprised of different movement mechanisms.

7. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (JP 08-075666) in view of Chahal et al. (4,525,741) as applied to claim 1 above, and further in view of Michael et al. (6,421,458).

Regarding claim 3, Uchida and Chahal do not appear to recognize including a controlling means to correct the image data on the basis of the degree of slant. However, Michael et al. ("Michael") teaches that it is known to provide a controlling means 306 to correct the image data on the basis of the degree of slant (Col. 6, lines 24-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the 2-D image disclosed by Uchida and Chahal to include a controlling means to correct the data on the basis of the degree of slant as taught by Michael because slant or skew correction is an essential

Art Unit: 2623

procedure routinely implemented in image processing to increase system accuracy and reliability.

Regarding claim 11, the arguments analogous to those presented above for claim 3 are applicable to claim 11. Michael discloses the slant correction is accomplished by an affine transformation 310 (Figure 1B). While Michael does not expressly state the claimed equation, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the general affine transformation disclosed by Michael to explicitly state the claimed equation because it is a matter of design choice by incorporating the standard trigonometric equations such as calculating the cosine of an angle or using the arc cosine to identify the angle.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (JP 08-075666) in view of Chahal et al. (4,525,741) as applied to claim 1 above, and further in view of Shimizu (4,817,177).

Regarding claim 4, Uchida and Chahal do not recognize assigning every work board a transmission channel for sequentially transmitting periodically varying images, assembling the image data into a transmission packet, and transmitting the transmission packet. However, Shimizu teaches that it is known to provide separate transmission channels (Figure 1) and to assemble image data into a transmission packet and transmit the transmission packet (Col. 3, lines 28-49). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the transmission of image data disclosed by Uchida and Chahal to include providing separate transmission channels and assembling the data into a transmission packet as taught by Shimizu because it allows for high-speed transmission (Col. 3, lines 45-49).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (JP 08-075666) in view of Chahal et al. (4,525,741) as applied to claim 1 above, and further in view of Suzuki et al. (JP 09160982).

Regarding claim 5, Uchida and Chahal do not appear to recognize a plurality of manufacturing processes. However, Suzuki teaches that it is known for a work to pass through a plurality of manufacturing processes (Abstract, lines 1-6). Suzuki further teaches that it is known to provide a detecting means 29-34 for detecting the entry and exit of the work into and out of each manufacturing process (Pages 6 and 7, para. 0031-0040), a time-measuring means for measuring times when the entry and exit of the work board are detected by the detecting means (Page 6, para. 0038), and an identifying means for identifying the work based on a process number representing each manufacturing process, and on times of entry and exit of the work into and out of the process measured by the time-measuring means (Page 5, para. 0025-0027). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the inspection of the work boards disclosed by Uchida and Chahal to include the inspection through manufacturing processes as taught by Suzuki because it provides a continuous quality and process control of the work and will enhance the manufacturing conditions (Abstract).

Response to Arguments

10. Regarding Suzuki et al. (JP 09160982) appearing to be an incomplete document in that the abstract ends with a line "and the quality state data and the process state data in..." , the

Art Unit: 2623

abstract is concluded in the second column with "a desired process can be obtained." This reference was given by the applicant in IDS paper number 7.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

Art Unit: 2623

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

vk

VK
9/5/03

MEHRDAD DASTOURI
PRIMARY EXAMINER
AU 2623

Mehrdad Dastouri